ESTIMATED THERMAL STATE AND THICKNESS OF THE AEGEAN LITHOSPHERE

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The geotherms of the lithosphere are estimated at three areas in the Aegean plate. Three alternetive models for the distribution of the radiogenic heat sources in the crust are used es follows: a) constent heat production in the upper enriched crust and uniformly poor intermediate crust, b) exponential heat production in the upper crust and poor intermediete crust and c) constant heat production in the enriched crust end uniformly rich intermediate crust.

The lithospheric thickness is estimated as the depth et which the geotherm intersects the mixed volatile mantle solidus. The lithosphere is significantly thinned in the Cretan Sea, where a thickness close to 50 Km is estimated.

It gets thicker in the Prinos graben elthough it remains thin in comparison to the global everage. By contrast, thick lithospheric roots are inferred below Crete.

THE KALAMATA 13.9.1986 EARTHQUAKE: GRAVITY CORRELATION AND AFTERSHOCK SEQUENCE

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After the destructive Kalamata earthquake (13.9.86, Ms = 6.2) gravity measurements along profiles were carried out to the north and east of the city. The profiles show high gravity gradients to the north and north-east of Kalamata. The high grevity gradient near the Nedon River confirms the existence of the fault striking along the river, which forms the western boundary of both the Perivolakia graben and the extent of the severe damages from the earthquekes. High gradients along two smell N-S and one of the NE-SW profiles suggest also the existence within the graben and under the Pleistocene-Holocene sediment cover of fault(s) of probable E-W to NS-SE direction exhibiting a throw to the S-SE.

The distribution of the aftershock epicentres around Kalamata city has shown two distinct clusters separated by a narrow zone of no seismic activity. The two clusters differ substantially in a number of characteristics: (a) the southern cluster, in contrast to the northern one, shows a uniform behaviour in their analysis with the principal parameters method; (b) the southern cluster is activated later than the northern one in the aftershock sequence; (c) the mean hypocenter depth is 7 ± 2 Km for the northen cluater and 5 ± 2 Km

for the southern one; (d) the southern cluster shows a much larger dispersion then the northern one; (e) focal mechanisms for the northern clustar suggest a N105°E extension, whereas in the southarn cluster compression of similar direction is also observed; (f) the hypocenters' projection on the vertical plane through the Kalamata Fault trace fall within the expected fault zone in the northern cluster, and most of them in the footwall in the southern cluster.

The study of the direction of the contact between the Tripolis unit Flysch and limestones and the Pleistocene sediments, the similar trend of the Pleistocene-Holocene sediments contact and the change of the flow direction of the Venitsa end Xarilas rivers at these contacts, along with some mapped faults of a general NW-SE direction and the change of the Kalamata Fault trend, suggest that the existence of a zone of NW-SE trending besement faults is probable to the NE of the Kalamata city. The same direction is also suggested by the co-planar ellipsoids of the southern cluster aftershocks.

It is believed that a major part of the aftershock activity in the southern cluster is due to movements along these NW-SE trending faults and even the largest aftershock may have occured at the junction of the Kalamata Fault with these faults.

PALEOMAGNETIC INVESTIGATIONS ALONG THE OPHIOLITIC BELT OF CHALKIDIKI

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Sempling was carried out in gabbros (10 sites) and more or less serpentinized peridoties (5 sites) located on the segment Efkarpias - Metamorphosis. The investigation aims to detect and identify different overprint phases as results from the multiphase tectonic history of the belt. Systematic measurements of anisotropy of susceptibility complete the informations on the tectonic environment of the paleomagnetic sites.

With exception of the components close to the present field direction, the demagnetizing process exhibits three groups of characteristic *in situ* directions:
- the NE directions with intermediate positive inclinations,
- the ENE directions with low positive or negative inclinations (and conversely),
- the NW directions with intermediate to low positive inclinations (and conversely).

The first group is consistent with the directions obtained on early Tertiary plutonics and volcanics from neighbouring areas. The other components are interpreted as Mesozoic-early Cenozoic in age, the north-westerly being the oldest. The tectonic implications of these different directions are discussed. At least two rotation phases of the whole belt, in opposite sense, are evidenced.